

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant(s):	SUZUKI, et al.	Group Art Unit:	2877
		Examiner:	Lee, Hwa S.
Filed:	March 6, 2002		
		Customer No.:	27123

For: INTERFEROMETER AND INTERFERENCE MEASUREMENT METHOD

REQUEST FOR SUPPLEMENTAL CERTIFICATE OF CORRECTION OF PATENT

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Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

Dated: June 20, 2007

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UNITED STATES PATENT AND TRADEMARK OFFICE
SUPPLEMENTAL CERTIFICATE OF CORRECTION

PATENT NUMBER : 7,106,455 B2
DATED : September 12, 2006
INVENTOR(S) : Akiyoshi SUZUKI, Yoshiyuki SEKINE

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Title

INTERFEROMETER AND INTERFERANCE MEASUREMENT METHOD

Replace "INTERFERANCE" with – INTERFERENCE --

ADDRESS ASSOCIATED WITH CUSTOMER NUMBER:
27123

PATENT NO. 7,106,455 B2

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(12) **United States Patent**
Suzuki et al.

(10) **Patent No.:** US 7,106,455 B2
(45) **Date of Patent:** Sep. 12, 2006

(54) **INTERFEROMETER AND INTERFERENCE MEASUREMENT METHOD**

(75) Inventors: Akiyoshi Suzuki, Tokyo (JP);
Yoshiyuki Sekine, Tochigi (JP)

(73) Assignee: Canon Kabushiki Kaisha, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 187 days.

4,536,086 A	8/1985	Shemwell	
4,725,144 A	2/1988	Nelson et al.	
4,743,117 A *	5/1988	Kitabayashi et al.	356/520
4,958,931 A *	9/1990	Tatian	356/513
5,530,547 A *	6/1996	Arnold	356/458
5,625,454 A *	4/1997	Huang et al.	356/513
5,737,079 A *	4/1998	Burge et al.	356/513
5,898,501 A *	4/1999	Suzuki et al.	356/511
6,312,373 B1	11/2001	Ichihara	
6,342,703 B1	1/2002	Koga et al.	
6,456,382 B1 *	9/2002	Ichihara et al.	356/513
2002/0176090 A1 *	11/2002	Ohsaki et al.	356/512

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(51) **Int. Cl.**
G01B 9/02 (2006.01)

(52) **U.S. Cl.** 356/512; 356/513; 356/521;
378/36

(58) **Field of Classification Search** 356/512,
356/513, 521, 511; 378/36
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,305,294 A 2/1967 Alvarez

FOREIGN PATENT DOCUMENTS

JP	5-1970	1/1993
JP	7-229721	8/1995
JP	2000-97666	4/2000
JP	2000-133579	5/2000
JP	2002-310611	10/2002
JP	2002-310612	10/2002

* cited by examiner

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(57) **ABSTRACT**

There is provided an interferometer for measuring a surface shape of an optical element using interference, including a reference wave-front generating unit for generating a reference wave front for measuring the surface shape, which is provided in a target optical path, and includes an Alvarez lens.

33 Claims, 10 Drawing Sheets

